

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A method of dynamically re-allocating a frequency spectrum to a plurality of radio networks (RNs) in accordance with a predefined spectrum allocation scheme, wherein a spectrum resource has previously been allocated to each RN or group of RNs comprising:

generating an electronic spectrum request for a RN or a group of RNs, wherein the spectrum allocation scheme is based on spectrum credits assigned with the RN or group of RNs, the spectrum credits relating to elementary spectrum units and being exchangeable into spectrum resources; and

transmitting the electronic spectrum request via a communications network to a server infrastructure which also receives electronic spectrum requests for other RNs, the server infrastructure processing the received electronic spectrum requests in accordance with the spectrum re-allocation scheme and in accordance with the spectrum allocation scheme to reallocate the spectrum resources to the plurality of RNs.

2. (Original) The method of claim 1, wherein the re-allocation is performed continuously or wherein the re-allocation is performed quasi-continuously.

3. (Previously Presented) The method of claim 2, further comprising determining a service quality of one of the RNs taking into account the actual or predicted traffic on the RN's spectrum resource and generating the electronic spectrum request in dependence of the service quality.

4. (Previously Presented) The method of claim 3, wherein the whole frequency spectrum is re-allocated.

5. (Previously Presented) The method of claim 3, wherein only a portion of the frequency spectrum is re-allocated and wherein the portion of the frequency spectrum to be re-allocated is taken from the individual RNs' spectrum resources according to a predefined contribution scheme.

6. (Canceled)

7. (Currently Amended) The method of claim 1 [[6]], wherein each RN or group of RNs is assigned the same or an individual first number of spectrum credits and wherein an electronic spectrum request for an RN comprises a specification of a second number of spectrum credits representative of the requested spectrum resource.

8. (Previously Presented) The method of claim 7, wherein the communications network allows to reassign the spectrum credits among the plurality of RNs.

9. (Previously Presented) The method of claim 8, wherein the spectrum credits have a limited temporal validity.

10. (Previously Presented) The method of claim 9, wherein the spectrum re-allocation scheme is auction-based and wherein the electronic spectrum requests comprise electronic bids submitted via the communications network.

11. (Previously Presented) The method of claim 10, wherein the electronic bids relate to one or more frequency bundles comprised within the frequency spectrum and wherein a specific frequency bundle is re-allocated to the RN associated with the best electronic bid.

12. (Previously Presented) The method of claim 11, wherein, prior to the next re-allocation process for all RNs, the specific frequency bundle or a part thereof re-

allocated to the RN or group of RNs associated with the best electronic bid is allocated to another RN or group of RNs.

13. (Original) The method of claim 10, wherein the frequency spectrum to be re-allocated is partitioned bid-proportionally.

14. (Previously Presented) The method of claim 13, wherein the electronic bids are submitted iteratively.

15. (Previously Presented) A computer program product for dynamically re-allocating a frequency spectrum to a plurality of radio networks (RNs) in accordance with a predefined spectrum allocation scheme, wherein a spectrum resource has previously been allocated to each RN or group of RNs, comprising program code portions for:

generating an electronic spectrum request for a RN or a group of RNs, wherein the spectrum allocation scheme is based on spectrum credits assigned with the RN or group of RNs, the spectrum credits relating to elementary spectrum units and being exchangeable into spectrum resources; and

transmitting the electronic spectrum request via a communications network to a server infrastructure which also receives electronic spectrum requests for other RNs, the server infrastructure processing the received electronic spectrum requests in accordance with the spectrum re-allocation scheme and in accordance with the spectrum allocation scheme to reallocate the spectrum resources to the plurality of RNs.

16. (Canceled)

17. (Previously Presented) A system for dynamically re-allocating a frequency spectrum to a plurality of radio networks (RNs) in accordance with a predefined spectrum re-allocation scheme, wherein a spectrum resource has previously been allocated to each RN or group of RNs, comprising:

a communications network;

at least one RN infrastructure with one or more RNs, means for generating an electronic spectrum request, wherein the spectrum allocation scheme is based on spectrum credits assigned with the RN or group of RNs, the spectrum credits relating to elementary spectrum units and being exchangeable into spectrum resources, and means for transmitting the electronic spectrum request via the communications network; and

a server infrastructure in communication via the communications network with the at least one RN infrastructure, the server infrastructure having means for receiving electronic spectrum requests and means for processing the received electronic spectrum requests in accordance with the spectrum re-allocation scheme and in accordance with the spectrum allocation scheme to re-allocate the spectrum resources to the plurality of RNs.

18. (Previously Presented) The system of claim 17, configured as an electronic auction network.

19. (Previously Presented) A server infrastructure for dynamically re-allocating a frequency spectrum to a plurality of radio networks (RNs) in accordance with a predefined spectrum re-allocation scheme, wherein a spectrum resource has previously been allocated to each RN or group of RNs, comprising:

means for receiving electronic spectrum requests in communication via a communications network with at least one RN infrastructure, wherein the spectrum allocation scheme is based on spectrum credits assigned with the RN or group of RNs, the spectrum credits relating to elementary spectrum units and being exchangeable into spectrum resources; and

means for processing the received electronic spectrum requests in accordance with the spectrum re-allocation scheme and in accordance with the spectrum allocation scheme to re-allocate the spectrum resources to the plurality of RNs.

20. (Previously Presented) A radio network (RN) infrastructure utilizing a previously allocated spectrum resource, comprising:

at least one RN; and

a device for generating an electronic spectrum request and for transmitting the electronic spectrum request via a communications network to a server infrastructure which also receives electronic spectrum requests for other RNs, wherein the spectrum allocation scheme is based on spectrum credits assigned with the RN or group of RNs, the spectrum credits relating to elementary spectrum units and being exchangeable into spectrum resources, the server infrastructure processing the received spectrum requests in accordance with a predefined spectrum re-allocation scheme and the spectrum allocation scheme to re-allocate a spectrum resources to the at least one RN.

REMARKS/ARGUMENTS

Claim Amendments

The Applicant has amended claim 7. Applicant respectfully submits no new matter has been added. Accordingly, claims 1-5, 7-15 and 17-20 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

Examiner Objections - Claims

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. The Applicant appreciates the Examiner's thorough review of the claims. The Applicant has amended the claim as suggested by the Examiner in order to correct the informality.

Claim Rejections – 35 U.S.C. § 103 (a)

Claims 1-3, 5, 7-9, 15, 17, 19-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Liu et al (US 2003/0095562) in view of Peele (US 6,898,431). The Applicant respectfully traverses the rejection of these claims.

The Applicant respectfully directs the Examiner's attention to claim 1.

1. (Previously Presented) A method of dynamically re-allocating a frequency spectrum to a plurality of radio networks (RNs) in accordance with a predefined spectrum allocation scheme, wherein a spectrum resource has previously been allocated to each RN or group of RNs comprising:

generating an electronic spectrum request for a RN or a group of RNs, wherein the spectrum allocation scheme is based on spectrum credits assigned with the RN or group of RNs, the spectrum credits relating to elementary spectrum units and being exchangeable into spectrum resources; and

transmitting the electronic spectrum request via a communications network to a server infrastructure which also receives electronic spectrum requests for other RNs, the server infrastructure processing the received electronic spectrum requests in accordance with the spectrum re-allocation scheme and in accordance with the spectrum allocation scheme

to reallocate the spectrum resources to the plurality of RNs. (emphasis added)

The Applicant respectfully submits that the above emphasized limitations are not taught or suggested by the Liu or the Peele reference or by a combination of the Liu and Peele references.

The Applicant's present invention is directed to trading frequency spectrum between operators of radio access networks; allowing operators to buy or sell spectrum portions according to their requirements. The spectrum can be traded in different kinds of auctions, optionally using spectrum credits that are spent by the operator when using the spectrum. The trading takes place between networks (as claimed, a plurality of networks).

The Examiner again equates the Applicant's "plurality of radio networks" to Liu's "NIUs", which Liu states are Network Interface Units. Figure 1 illustrates the NIUs of Liu as being interposed between a PBX 10 and LAN 18 and a BTS 10 which is connected to a single network 12. The Applicant respectfully submits that the NIU as disclosed in LIU is not a network; it is an interface and is identified as such in paragraph 0004. Additionally, the Applicant discloses a plurality of networks and Liu discloses a single network. Liu is directed at dynamic bandwidth allocation (Summary). The Liu reference combines GBA and DBA and focuses on time slot allocation to individual NIUs in a single network (Summary). Liu does not disclose that the Applicant's spectrum allocation scheme uses spectrum credits. Liu also does not disclose that the spectrum credits are exchangeable into spectrum resources. The Liu reference lacks many of the elements of independent claim 1.

Statement of Common Ownership

This present application and Peele were, at the time of the invention of the present application, owned by, or subject to an obligation of assignment to Telefonaktiebolaget LM Ericsson, a Swedish corporation.

This present application was filed after November 29, 1999. Accordingly, Applicant asserts that the subject matter of Peele is disqualified as prior art under 35 U.S.C. § 103(c). Because Liu lacks the elements emphasized above in independent claim 1 and the Peele reference is disqualified as prior art, a 103 rejection is not proper and the allowance of claim 1 is respectfully requested

Independent claims 15, 17, 19 and 20 are analogous to claim 1 and contain similar limitations. The Applicant respectfully requests the withdrawal of the rejection of claims 1, 15, 17 and 19-20 and the respective dependent claims.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Liu et al (US 2003/0095562) in view of Peele (US 6,898,431) and further in view of Shionozaki (6,038,214). The Applicant respectfully traverses the rejection of this claim.

As noted above, the use of prior art that is commonly owned is not proper. Shionozaki does not provide the limitations missing from the Liu reference. This being the case, the Applicant respectfully submits that the requirements of a prima facie case of obviousness has not been met. This being the case, the Applicant respects withdrawal of the rejection of claim 4.

Claims 10-14, 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Liu et al (US 2003/0095562) in view of Peele (US 6,898,431) and further in view of O'Neil (7,099,681). The Applicant respectfully traverses the rejection of these claims.

As noted above, the use of prior art that is commonly owned is not proper. Also, neither the Shionozaki nor O'Neil references provide the limitations missing from the Liu reference. This being the case, the Applicant respectfully submits that the requirements for a prima facie case of obviousness have not been met. This being the case, the Applicant respects withdrawal of the rejection of claim 4.